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| 10/594,337 | 08/16/2007 | Pekka Lehtonen | 01762.014200. | 3358 |

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| EXAMINER | |
|---|---|
| CLEVELAND, TIMOTHY C | |
| ART UNIT | PAPER NUMBER |
| 1797 | |

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| 05/27/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/594,337 | LEHTONEN ET AL. | |
| | Examiner | Art Unit | |
| | Timothy Cleveland | 1797 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *08 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) *13 and 15-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13 and 15-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/08/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. The rejection of claim 13 has been slightly modified for clarity in response to the amendment filed 4/08/2010.

### *Claim Rejections - 35 USC § 102*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 13, 14, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bechthold et al. (US Patent 3,633,887) (hereinafter "Bechthold").

4. In regards to claim 13, Bechthold teaches

a nozzle piece (distributing head 22) attached to a nozzle tube (inner tube 21), the nozzle piece comprising a nozzle chamber (central passage 22d), a horizontally extending nozzle channel (atomizing and mixing chamber 32), and a blow opening (lateral opening 30) at the end of the nozzle piece, the blow opening directing fluidizing gas being blown through the nozzle chamber and the nozzle channel into the fluidized bed gasifier (reactor 50); an impervious lid (upper body 22a, which is implicitly impervious to the conditions in the reactor) for defining an upper limit of the nozzle chamber, the nozzle channel and the blow opening; and a protecting cover (disk 33) attached above and spaced apart from (forming gap 36) the lid (by axial stud 34). See col. 5, lines 52-71 and Figures 2 and 3.

5. In regards to claim 17, Bechthold teaches heat insulation (gap 36) arranged between the lid (upper body 22a) and the protecting cover (disk 33). See col. 5, lines 59-67.

6. In regards to claim 18, Bechthold teaches wherein the protecting cover (disk 33) is attached to the lid (upper body 22a) at all sides, except for the one on the blow opening side (the nozzle is open on all sides, see Figure 2a) of the nozzle.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechthold (US Patent 3,633,887) as applied to claim 13 above.

9. In regards to claim 24, Bechthold teaches wherein the protecting cover (disk 33) is attached by an axial stud (34) to the lid (upper body 22a).

10. Bechthold does not teach wherein the protecting cover (disk 33) is attached by welding to the lid (upper body 22a). However, Bechthold teaches welding to attach the tubes (31) to the inner wall of passages (22d) at 31a (col. 5, lines 60-61) and outer tube (20) to gas distributor plate (23a) at 20a (col. 5, lines 38-41). Therefore, welding the disk (33) to the upper body (22a) would have been the simple substitution of a known attachment technique, and is unpatentable over Bechthold.

11. Claims 15, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechthold (US Patent 3,633,887) as applied to claim 13 above, and further in view of Zugner (US Patent 4,779,547).

12. In regards to claim 15, Bechthold teaches wherein said protecting cover (disk 33) comprises a cover plate (disk 33).

13. Bechthold does not teach ribs arranged at least to the periphery of the cover plate.

14. In the analogous art of air supply nozzles for fluidized bed furnaces, Zugner teaches a nozzle (Figure 1) with a lid (13) and a protecting cover (wear resisting ring 14 and refractory concrete 15) wherein the protecting cover comprises a cover plate (refractory concrete 15) and ribs (wear resisting ring 14) arranged at least to the periphery thereof for the benefit of providing wear protection for the nozzle through the ring forming a void to be filled by the refractory concrete. See Figure 1 and col. 2, lines 48-52.

15. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the ring and concrete of Zugner with the nozzle of Bechthold for the purpose of providing wear protection for the nozzle.

16. In regards to claim 16, Bechthold teaches a protecting cover (disk 33) attached to the lid (upper body 22a).

17. Bechthold does not teach ribs arranged at least to the periphery of the cover plate.

18. Zugner teaches a protecting cover (wear resisting ring 14 and refractory concrete 15) that is attached to the lid (13) by means of ribs (ring 14) at least at the periphery of the protecting cover (ring projects above the edge of the lid 13, see Figure 1). The ring attaches the refractory concrete (15) to the lid (13) by holding the refractory cement (15) in place.

19. In regards to claims 19 and 20, Bechthold teaches wherein the protecting cover (disk 33) is attached to the lid (upper body 22a).

20. Bechthold does not teach wherein the protecting cover is attached to the lid by ribs extending to the side surfaces of said lid.

21. Zugner teaches a protecting cover (wear resisting ring 14 and refractory concrete 15) that is attached to the tubular member (11), which itself is attached to the lid (13), by ribs (wear resisting ring 14) extending to the side surfaces (see Figure 1) of the tubular member (11).

22. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the ring and concrete of Zugner with the nozzle of Bechthold for the purpose of providing wear protection for the nozzle.

23. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechthold (US Patent 3,633,887) as applied to claim 13 above, and further in view of Nordh (US Patent 4,748,916).

24. In regards to claim 23 and 25, Bechthold does not explicitly teach the material used to make the protecting cover or the lid.

25. In the analogous art of fluidized-bed nozzles, Nordh teaches an air nozzle that can be made from ceramic material for the benefit of making the nozzle low cost and mass producible. Furthermore, the nozzle is cast (abstract), which would imply that the entire body of the nozzle would be made from one material. See col. 3, lines 29-34.

26. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the material of Nordh with the nozzle of Bechthold for the purpose of making the nozzle low cost.

27. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechthold (US Patent 3,633,887) as applied to claim 13 above, and further in view of Capy (US Patent 3,921,913) and even further in view of Nordh (US Patent 4,748,916).

28. In regards to claim 21, Bechthold does not teach means arranged at the blow opening end of the nozzle channel for forming a rising gas flow to the front of the blow opening.

29. In the analogous art of gas dispensing apparatuses, Capy teaches a gas burner (Figure 4) with means (inclined part 17 on ceramic part 11) arranged at the blow opening end of the nozzle channel for forming a rising gas flow to the front of the blow opening (see col. 3, 13-23).

30. Capy does not provide motivation to combine with Bechthold.

31. In the analogous art of fluidized-bed nozzles, Nordh teaches that nozzles in a fluidized-bed reactor must direct air-flow upwardly in order to fluidize the bed or the reactor. See col.1, lines 45-50.

32. It would have been obvious to combine the inclined part of Capy with the nozzle of Bechthold using the motivation provided in Nordh for the purpose of deflecting the gas flow out of the nozzle upwards in order to fluidize the bed in the reactor.

33. In regards to claim 22, Bechthold does not teach a smooth bump located on the upper surface of the nozzle channel.

34. In the analogous art of gas dispensing apparatuses, Capy teaches a gas burner (Figure 4) with a smooth bump (inclined part 17) located on the upper surface of the nozzle channel (between member 11 and wall 8) and extending substantially throughout the whole width thereof (inclined part 17 extends around entire circumference) and arranged at the blow opening end of the nozzle channel for forming a rising gas flow in the front of the blow opening. See Figure 4 and col. 3, lines 13-23.

35. Capy does not provide motivation to combine with Bechthold.

36. In the analogous art of fluidized-bed nozzles, Nordh teaches that nozzles in a fluidized-bed reactor must direct air-flow upwardly in order to fluidize the bed or the reactor. See col.1, lines 45-50.

37. It would have been obvious to combine the inclined part of Capy with the nozzle of Bechthold using the motivation provided in Nordh for the purpose of deflecting the gas flow out of the nozzle upwards in order to fluidize the bed in the reactor.

### *Response to Arguments*

38. Applicant's arguments filed 4/08/2010 have been fully considered but they are not persuasive.

39. Applicant argues that Bechthold does not teach or suggest the arrangement of the nozzle, the impervious lid and the protecting cover of the present invention. The Examiner respectfully disagrees. Applicant points to the pipe 31 of Bechthold as evidence that the upper body 22a is provided with cooling. However, the limitation of the protecting cover having the purpose of "minimizing cooling of the outer surface of the nozzle piece due to fluidizing gas blown through the nozzle" is merely a statement of intended use and does not further limit the claims. Note that the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. The instant claim 13 does not exclude the addition of a pipe passing through the lid into the space formed by the protecting cover. Therefore, using the broadest reasonable interpretation of the claims, the instant claim 13 is viewed as being anticipated by Bechthold.

### *Conclusion*

40. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Cleveland whose telephone number is (571)270-5041. The examiner can normally be reached on Monday-Thursday 7:30-5 EST alt Friday 8:30-4 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571)272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy Cleveland/

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797